

## Affidavit of Charles D. DeGraff

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

**DYSON TECHNOLOGY LIMITED and  
DYSON, INC.,**

**Plaintiffs,**

**V.**

**MAYTAG CORPORATION,**

**Defendant.**

**CIVIL ACTION NO.: 05-05-434**

**AFFIDAVIT OF CHARLES D. DEGRAFF**

**I, Charles D. DeGraff, being first duly sworn, do hereby depose and say:**

1. I received a Bachelor of Science in Chemical Engineering from Case Institute of Technology in 1960.

2. I was continuously employed by The Hoover Company from 1960 until I retired in January 2001. During my entire period of employment with Hoover, I worked in engineering capacities, and my entire career was devoted to the design, development, and manufacturing of various floor care products, and particularly vacuum cleaners.

3. In 1985 I became Chief Engineer, and from 1986 until my retirement, I was Vice President of Engineering at Hoover. During that entire time, 1985-2001, the Patent Department of The Hoover Company reported directly to me.

4. Having a direct line of report from the Patent Department at Hoover, I became quite familiar with patents, and consider myself proficient in reading, understanding and applying their teachings and claims.

5. The statements offered herein are predicated upon my knowledge and experience, and upon my study and review of U.S. Patents 4,643,748, 4,826,515, 4,853,008 and 5,858,038, their

prosecution histories, certain of the papers filed herein by Dyson regarding its Motion for Preliminary Injunction, including portions of the Jones Affidavit presented in support thereof, Amway vacuum cleaner Model CMS 1000A, and prior art U.S. Patents 4,571,772, 1,029,562, 2,542,634 and 1,159,267.

6. Various claim limitations of claim 14 of the '515 patent are absent in the Fusion vacuum cleaner.

7. Claim 14 of the '515 patent requires "a dirty air inlet at an upper portion of the outer container spaced from the bottom." ('515 Patent Col. 11, ll. 39-41).

8. In the context of the '515 patent, the dirty air inlet 16 is at the top or "upper portion" of outer container 10, as clearly shown in Fig. 1. In contradistinction, the dirty air inlet of the accused Fusion vacuum cleaner is spaced 4.69 inches from the top of the container, which is 11.5 inches long. In other words the dirty air inlet is positioned 41% of the distance from the top of the outer container. It is my opinion that such is clearly not in the "upper portion of the container" as intended by the '515 patent, but rather in a central portion of the container.

9. Claim 14 of the '515 patent further requires that the dirty air inlet comprise a portion of the outer container and that it be "oriented for supplying dirt laden air into the container tangentially to the interior surface of the outer container." ('515 patent, Col. 11, ll. 39-43).

10. The Fusion vacuum cleaner does not have the recited structure. The inlet that causes tangential flow in the Fusion vacuum cleaner is an insert that is separate and apart from the outer container, being attached to the vacuum cleaner housing, not the outer container. The tear drop shaped outlet referenced in Exhibit 6 to Dyson's Jones Affidavit is simply an opening to receive the inlet.

11. Claim 14 of the '515 patent requires a "cyclone for receiving an air flow from the air inlet and for maintaining its velocity to a cone opening." ('515 patent, Col. 11, ll. 52-53).

12. The Fusion vacuum cleaner is the antithesis of the claimed structure. The cyclone of the Fusion vacuum cleaner does not maintain the velocity of the air, but accelerates it.

13. Claim 14 of the '515 patent includes the limitation of "a dirt receiving and collecting chamber extending from the bottom of the container . . . wherein the receiving chamber has a circular cross-sectioned inner surface around the axis with a minimum diameter furthest from the opening of 3 times the diameter of the cone opening." ('515 patent, Col. 11, ll. 61-68).

14. In other words, as pointed out in paragraph 34 of the Jones Affidavit presented by Dyson, there is "a diameter at the end of the chamber furthest from the opening at the bottom of the cone-shaped inner cyclone that is a minimum of three times the diameter of that opening" - - i.e., it is at least three times the diameter.

15. I have measured the cone opening and the diameter of the dirt receiving chamber furthest from the cone opening, and have done so at two locations. The first location is at the bottom of the red cylindrical member that is separable from the base of the outer container, and I have found that the opening there is 2.9 times the diameter of the cone opening - - falling short of being "a minimum of 3 times" that diameter.

16. I also measured the ring area in the bottom of the base of the outer container, against which the red cylindrical member sits, and which constitutes the bottommost portion of the dirt receiving chamber - - furthest from the cone opening. At that measurement, the dirt receiving chamber has a diameter of 2.7 times the diameter of the cone opening - - being well less than "a minimum of 3 times" that diameter.

17. I note in paragraph 34 of the Jones Affidavit that Mr. Jones obtained the diameter of the dirt receiving chamber by measuring "the diameter of the rubber-like portion of the dirt receiving chamber furthest from the cone opening." But, that "rubber-like portion" is not a portion of the dirt receiving chamber at all. It does not define the chamber in any way. I note that this "rubber-like portion" is identified by Jones as the "ring seal," which is separately identified in claim 14 as an element distinct from the dirt receiving chamber. Claim 14 specifically recites "ring seal means between the chamber and outer container." ('515 patent, Col. 12, ll. 3-4) Since the ring seal of the claim is between the chamber and outer container, it is not a part of the chamber. Accordingly, a measurement of the ring seal could not possibly constitute a measurement of the chamber.

18. Certain of the claim limitations of claim 15 of the '748 patent are absent in the Fusion vacuum cleaner.

19. Claim 15 of the '748 patent contains a number of limitations of claim 14 of the '515 patent that, as treated above, are absent in the Fusion vacuum cleaner.

20. Claim 15 of the '748 patent requires "a dirty air inlet at an upper portion of the outer container." ('748 patent, Col. 6, ll. 20-21).

21. As presented above, the dirty air inlet is well below the upper portion of the outer container and, in fact, is 41% of the way down from the top of the outer container. If anything, the dirty air inlet is in a central portion of the outer container.

22. Claim 15 of the '748 patent requires that the outer container comprise "a dirty air inlet . . . which is oriented for supplying dirt laden air into the container tangentially to the interior surface." ('748 patent, Col. 6, ll. 17-23).

23. The Fusion vacuum cleaner does not have the recited structure. The inlet that causes tangential flow in the Fusion vacuum cleaner is an insert that is separate and apart from the outer container, being attached to the vacuum cleaner housing, not the outer container.

24. Claim 15 of the '748 patent requires "the cyclone . . . for receiving an air flow from the air inlet and for maintaining its velocity to a cone opening." ('748 patent, Col. 6, ll. 27-33).

25. As presented above, the cyclone of the Fusion vacuum cleaner does not serve to maintain the velocity of air, but is purposefully configured to significantly accelerate that air.

26. Claim 15 of the '748 patent requires "a disk means provided on the outside of the cyclone intermediate the receiving chamber and the air outlet of the container." ('748 patent, Col. 6, ll. 47-49).

27. In the Fusion vacuum cleaner, the disk is not provided on the outside of the cyclone, nor is it intermediate the receiving chamber and the air outlet. In fact, the purported disk is not on the outside of the cyclone, but is secured about an upper portion of the receiving chamber. Moreover, in the context of the '748 patent, it is not intermediate the receiving chamber and the air outlet of the container, as required by the claim, but in fact extends below the boundary of the receiving chamber. In the context of the '748 patent, and consistent with common usage, "intermediate" means "in the middle," and the purported disk of the Fusion vacuum cleaner is not only not in the middle of the area between the receiving chamber and the air outlet, but in fact overlaps or extends below the boundary of the receiving chamber itself.

28. Certain of the limitations of the '008 patent are absent in the structure of the Fusion vacuum cleaner.

29. Claim 1 of the '008 patent requires "an outer container comprising . . . a dirty air inlet which is oriented for supplying dirt laden air into the container tangentially to the interior surface." ('008 patent, Col. 4, ll. 2-7). The Fusion vacuum cleaner does not have the recited structure. The inlet that causes tangential flow in the Fusion vacuum cleaner is an insert that is separate and apart from the outer container, being attached to the vacuum cleaner housing, not the outer container.

30. Claim 1 of the '008 patent requires "a cyclone . . . for receiving an air flow from the air inlet and for maintaining its velocity." ('008 patent, Col. 4, ll. 11-15). As presented earlier herein, the cyclone of the Fusion vacuum cleaner does not maintain the air velocity, but intentionally accelerates it.

31. Claim 1 of the '008 patent requires that "the shroud means is mounted at one end below the air inlet to the cyclone." ('008 patent, Col. 4, ll. 35-36). But, the upper end of the shroud in the Fusion vacuum cleaner is above the top of the cyclone by at least 3/16 inch and, accordingly, above the air inlet to the cyclone.

32. Claim 1 of the '008 patent requires "the shroud means has perforations adjacent to the position intermediate to the cone opening ('008 patent, Col. 4, ll. 42-43). The recited "position intermediate to the cone opening," is previously identified in the claim as "the other end [of the shroud means] at a position intermediate to the cone opening." ('008 patent, Col. 4, ll. 35-37).

33. In the Fusion vacuum cleaner, the perforations are not adjacent to the position at the end of the shroud nearest the cone opening, but such perforations are spaced approximately an inch away from such location.

34. Claim 1 of the '008 patent requires "disk means provided on the shroud means." ('008 patent, Col. 4, l. 46). In the context of the patent, "provided on" means "integral with," which

is clear from the description in the patent of the prior art, and particularly at Col. 1, ll. 24-30, where the prior art is defined as having a separate disk and shroud. Moreover, in that same column, at lines 36-39, it is stated that a specific object of the invention is to provide "an improved cleaning apparatus wherein the shroud and disk are combined together for mounting on the outside of the inner cyclone." The Fusion vacuum cleaner practices the prior art in that the disk and shroud are separate and apart from each other, and not combined together as an integral construction.

35. Claim 1 of the '008 patent further requires that the disk is provided "at a lower longitudinal extent of the shroud means and the air inlet of the cyclone." ('008 patent, Col. 4, ll. 46-48). In contradistinction, in the Fusion vacuum cleaner the purported disk is well beyond the lower longitudinal extent of the shroud, and even further beyond the recited air inlet of the cyclone (perforations). Accordingly, the recited claim limitation is not satisfied.

36. Claim 23 of the '008 patent is substantially identical to claim 1 of that patent and, accordingly, the limitations of claim 23 that are absent in the Fusion vacuum cleaner are the same as the limitations of claim 1, treated directly above.

37. Limitations of claim 1 of the '038 patent are absent in the Fusion vacuum cleaner.

38. Claim 1 of the '038 patent requires that "the distance between the cone opening and the base surface is either less than 8 mm or between 30 mm and 70 mm." ('038 patent, Col. 5, ll. 26-28).

39. I have measured the distance in the Fusion vacuum cleaner, and have found it to be 72.2 mm, outside of the recited range of the claim.

40. I have noted from the prosecution history of the '038 patent that the examiner required the use of specific dimensions, and objected to use of the word "substantially," throughout



the claims. Accordingly, in reviewing the claims, I believe that one skilled in the art would recognize the dimensions as setting outer limits or boundaries, and would not construe the dimensions or boundaries as being either "substantially" or "about" the recited dimensions. The fact that the patentees distinguished between absolute measurements and "substantial" measurements is apparent from their attempted use of the word "substantially," which was rejected by the Examiner.


41. I have also had the opportunity to examine Amway vacuum cleaner Model CMS 1000A, Carpet Maintenance System, *circa* 1987, which I understand from papers in this litigation was the subject of certain prior litigation with Dyson. Material showing that unit is attached as DeGraff Exhibit 1. That Amway vacuum cleaner is prior art to the '038 patent and is a clear anticipation of claim 1 of the '038 patent, and others as well. Specifically, the Amway vacuum cleaner has a "distance between a cone opening and the base surface" of 61.3 mm, lying well within the range of "between 30 mm and 70 mm," as recited in the claim.

42. Upon further review of the Amway unit, it is apparent that the further limitations of at least claims 2, 3 and 7 are found in the Amway unit, thereby being anticipated by the Amway unit.

43. I have further reviewed claims 13 and 14 of the '038 patent, and found that the Fusion vacuum cleaner does not have the recited annular wall. Specifically, there is no wall extending upwardly from the base surface of the collector as defined in claim 1. To the extent that the Fusion vacuum cleaner has a collector with a base surface, any wall associated with the collector is outside of that base surface.

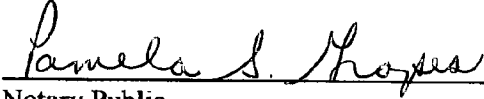
44. In having reviewed the papers pertaining to the Motion for Preliminary Injunction filed by Dyson, I have noted repeated suggestions that Dyson invented or originated cyclonic cleaning. Such is simply not the case. The use of cyclones in vacuum cleaners and similar devices

has been known for decades. Patents teaching such cyclonic cleaning or separation patent 1,029,562, issued to Prentiss in 1912. An upright cyclonic vacuum cleaner was presented in patent 2,542,634, issued to Davis et al. in 1951. The use of cyclonic separation in the so-called "central vacs" used in many homes, has been around for years.

  
Charles D. DeGraff

County of Stark                    )  
                                              )  
State of Ohio                    )

Sworn to and subscribed before me this 25<sup>th</sup> day of August, 2005.

  
Notary Public

SEAL

**PAMELA S. GRAPES  
NOTARY PUBLIC  
STATE OF OHIO  
MY COMMISSION EXPIRES 8-14-08**

## DeGraff Exhibit 1



**WARNING: ELECTRICAL SHOCK COULD  
OCCUR IF THE UNIT IS USED OUTDOORS  
OR ON WET SURFACES.**

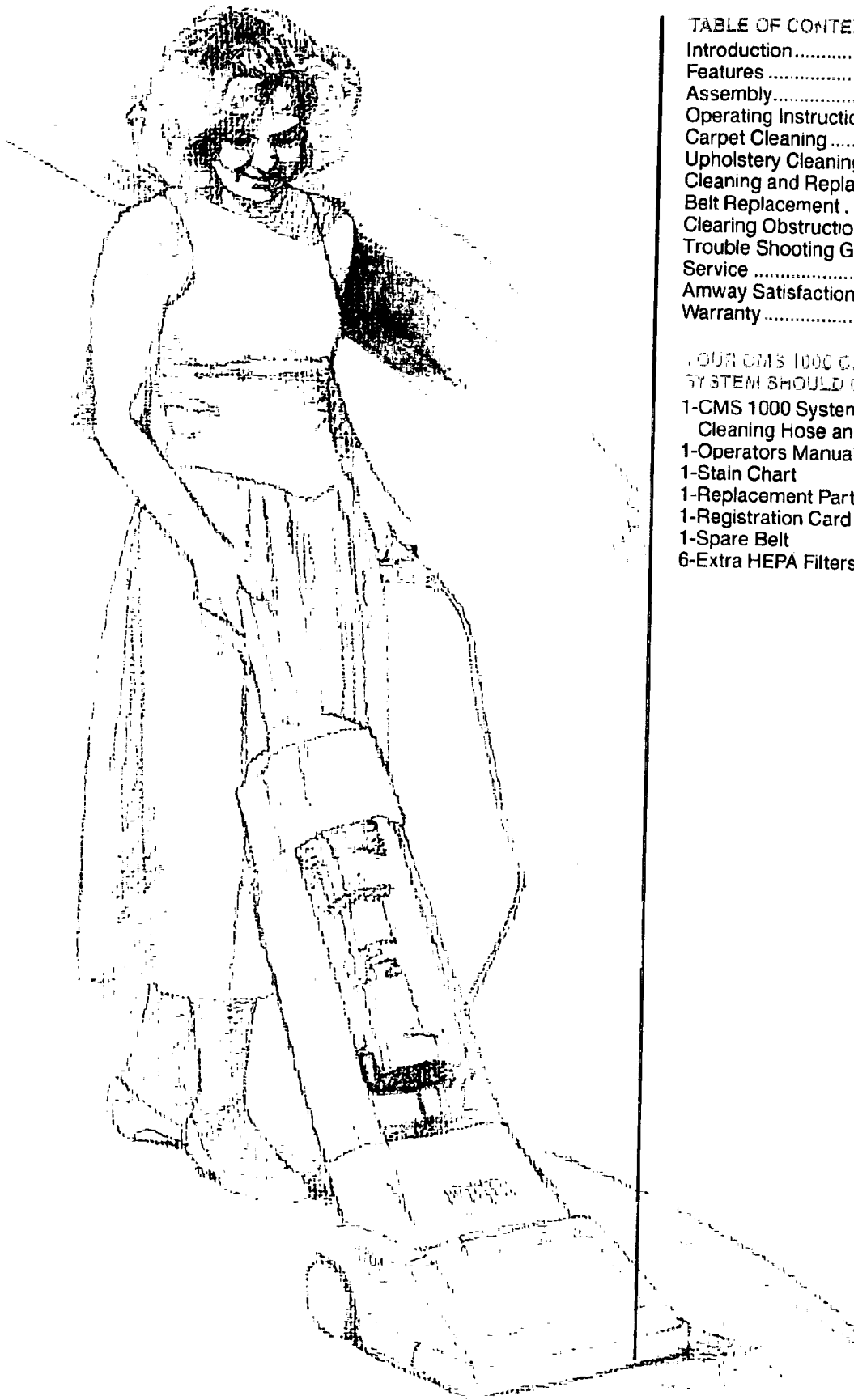


TABLE OF CONTENTS	Page
Introduction.....	4
Features .....	5
Assembly.....	5
Operating Instructions.....	6
Carpet Cleaning.....	8
Upholstery Cleaning.....	10
Cleaning and Replacing Filters .....	11
Belt Replacement .....	12
Clearing Obstructions.....	12
Trouble Shooting Guide .....	14
Service .....	15
Amway Satisfaction Guarantee.....	15
Warranty.....	15

**YOUR CMS 1000 CARPET MAINTENANCE SYSTEM SHOULD CONTAIN:**

- 1-CMS 1000 System Unit With Above Floor Cleaning Hose and Crevice Tool.
- 1-Operators Manual
- 1-Stain Chart
- 1-Replacement Parts List
- 1-Registration Card
- 1-Spare Belt
- 6-Extra HEPA Filters

## THE CMS 1000™ CARPET MAINTENANCE SYSTEM

The CMS 1000 System is a complete carpet maintenance system and general cleaning tool. Not only will it do an excellent job on household cleaning tasks, but it carries an Underwriter's Laboratory commercial listing for use in schools, office buildings, hotels, and restaurants, giving you commercial quality in a residential machine.

The CMS 1000 System is designed to deliver full power from start to finish of your cleaning while minimizing the significant power loss that can occur with other units. Conventional vacuum cleaners often deliver their full power only when the dust bag is empty. As the bag fills, the vacuum level may drop off.

The exclusive multi-stage filter system of the CMS 1000 System has been developed to avoid such power drop off. The system is designed to deliver maximum power at all times, even when the dust canister is full.

In this system, dust and dirt are picked up by a powerful three peak horsepower commercial rated motor and are processed in four stages. In the first two stages, centrifugal force in dual cyclone chambers removes dust and dirt from the incoming air. Then in the next two stages, foam and HEPA filters remove fine dust that may remain.

Since the CMS 1000 System does not depend on a bag for its filtration, it can maintain maximum performance during extended use.

## SAFETY PRECAUTIONS

1. Read the manual completely before attempting to operate the unit
2. Make certain the wall outlets that will be used are properly grounded. Have a licensed electrician check them if in doubt.
3. Don't use the unit if the cord, plug, motor or machine is in poor condition.
4. Don't allow the unit to be used as a toy, or to run unattended.
5. Use only the accessories provided or recommended by Amway.
6. Don't abuse the cord by closing doors on it, snagging it under furniture, or yanking it to unplug the machine. Protect the cord from heat, oil, and sharp edges.
7. Don't leave the cord lying on the carpet when you have finished using the machine. It could be a tripping hazard.
8. Always unplug the unit before unclogging, cleaning the machine, or changing the filter.
9. Do not operate the machine in the presence of explosive liquids or vapors.
10. Do not use the machine to pick up flammable or readily combustible materials, hot ashes or coals, burning cigarettes or other smoking materials, or liquids of any kind.
11. If it is necessary to use an extension cord, be sure to use a 3-conductor grounded cord of adequate size. An undersized cord will cause power loss and overheating, and it may become a safety hazard. Use this table to determine wire size:

EXTENSION CORD LENGTH (FEET)	50	75	100
A.W.G. WIRE SIZE REQUIRED	16	14	12

Inspect all cords and if there are any loose or exposed wires or damaged insulation, repair or replace the cord before using the machine.

12. Do not use the unit to vacuum wet or damp carpet or hard surfaces, or to pick up liquids.
13. When cleaning stairs, position the vacuum at the bottom of the stairs to avoid the risk of pulling the unit down on yourself by accident.

## GENERAL FEATURES

The CMS 1000 System is designed not only to clean carpets but to perform a whole range of general cleaning tasks. With the attachments that are available, it functions as both a canister and an upright vacuum. A carrying handle on the CMS 1000 System is provided for ease of transport.

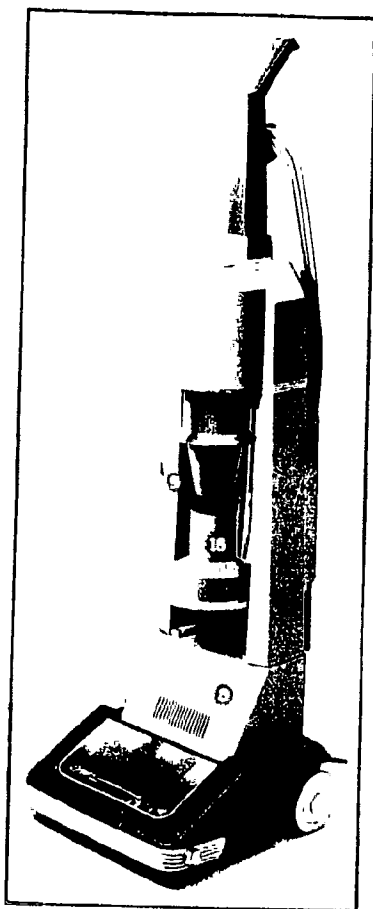
For general cleaning needs, the CMS 1000 System comes equipped with a flex hose and a crevice tool. An auxiliary tool package is also available (AD-6365), containing an additional flex hose, two-cleaning wands, an upholstery brush, carpet brush, dusting brush and an angle adapter.

The additional flex hose and wands allow you to clean a flight of stairs without moving the vacuum unit.

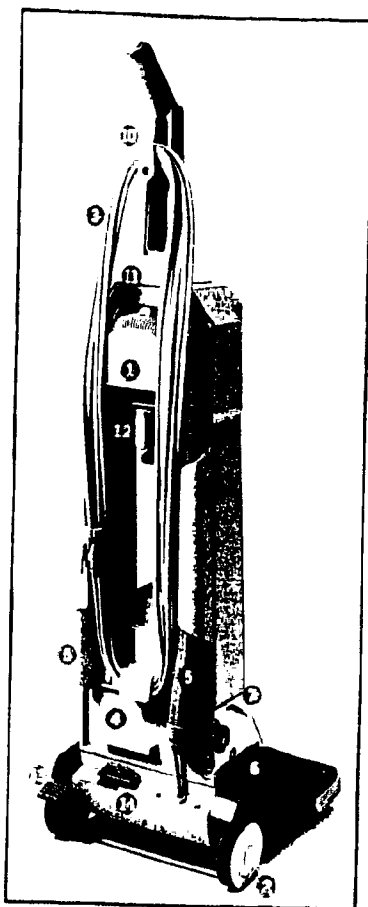
The wand, brush, and crevice tool allow you to clean curtains, automobile interiors, base boards, lamp shades, cupboards, and under pieces of furniture that cannot be moved.

The handle of the CMS 1000 System can be set in any of three positions, upright for convenient storage, at an angle, for easy cleaning of carpets, and lowered to the floor, to make it easier to vacuum under tables, chairs, and beds.

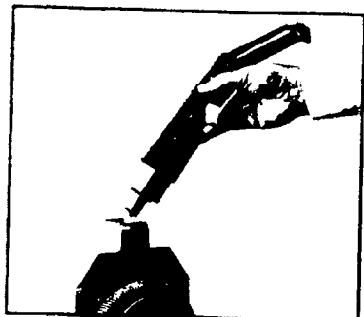
The CMS 1000 System is also equipped with an automatic height adjustment so there is no need to make adjustments when vacuuming carpets with different pile lengths.



1a



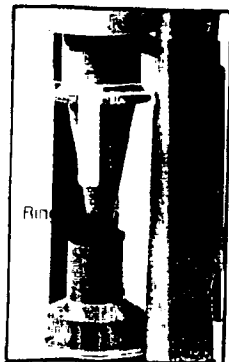
1b



2a



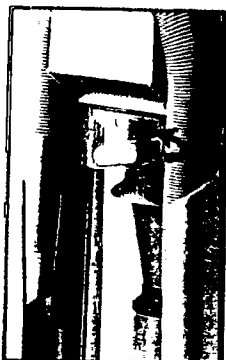
2b



2a



2b



2c

## DESCRIPTION OF FEATURES

- ① Carrying Handle
- ② Large Rubber Tire Wheels
- ③ 30 ft. Cord
- ④ Filter Tray
- ⑤ Built-in Hose and Crevice Tool
- ⑥ Carpet/floor Setting
- ⑦ Above-floor Setting
- ⑧ 3 Peak HP Motor
- ⑨ Dust Collection Bin
- ⑩ Cord Cam Lock and Release
- ⑪ Viewing Panel
- ⑫ Dust Bin Latch
- ⑬ Handle Release Lever
- ⑭ On/Off Power Switch
- ⑮ Inner Cyclone Chamber
- ⑯ Rubber Protection Bumper

## ASSEMBLY

1. Insert the handle as shown in the illustration (1a) and screw down tightly (1b)

2. Install the dust bin:

- Slip the dust bin into the frame and insert the upper funnel into the black rubber ring in the center of the bin. Do not twist, fold, or pinch the ring during installation. (2a)

- Rotate the bin over the tab to the left of the canister handle to secure it in place. (2b)

- Twist the blue handle on the back of the unit counterclockwise to lock the bin securely (2c)



**OPERATING INSTRUCTIONS**

1. Be sure that the dust bin is in place and secured both front and back, and that the foam filter is present in the filter tray.

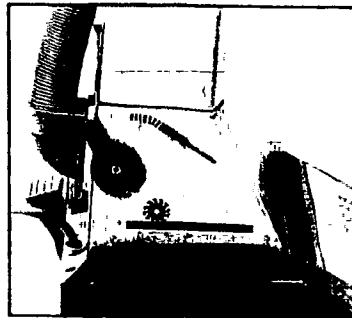
2. Twist down the grey latch (2a) to release the cord. The latch is designed to trap the last loop, holding the cord above the floor so it won't get in the way as you vacuum.

When you are done vacuuming, twist the latch and wind the cord up again for storage. (2b)

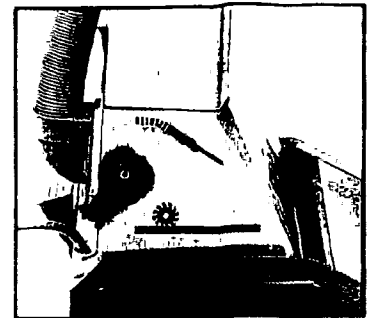
3. Plug in the machine.

4. Set the machine for floor cleaning or above floor cleaning, as needed, by turning the switch on the side. The arrow should point to the symbol.

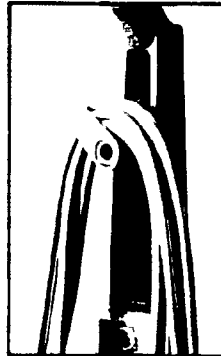
5. Press the blue switch between the wheels to turn on the machine. (5a)



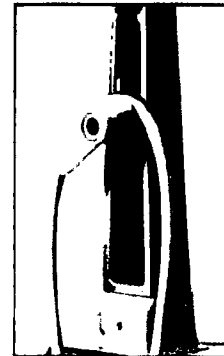
Floor Cleaning Mode



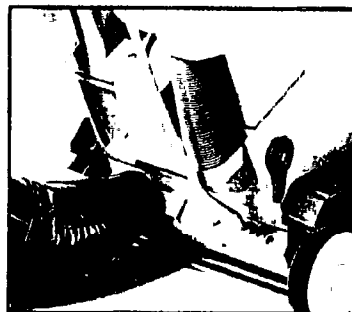
Above Floor Mode



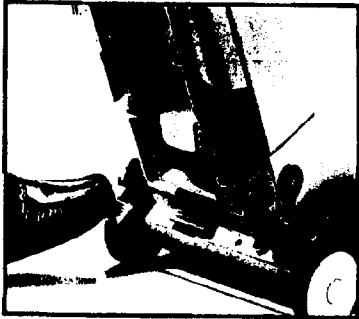
2a



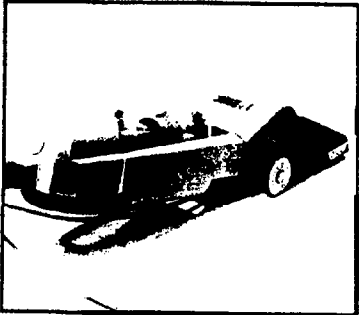
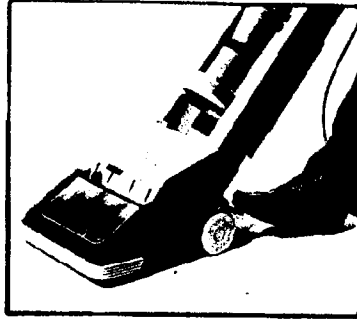
2b



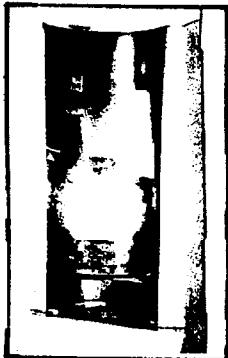
5a



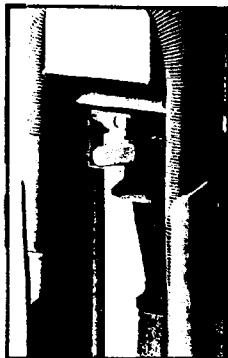
6a



6b



8a



8b



8c



8d



9a

6. Press the blue lever over the left wheel to release the handle from its upright position. (6a) The handle will lock at a comfortable angle for floor cleaning. While in this position if you push the handle farther down toward the floor, the foot will elevate to allow it to clear obstacles. You may press the lever a second time to lower the handle to its lowest position, for cleaning under tables, chairs, and beds. (6b)

7. To clean stairs, place the CMS 1000 System at the bottom of the flight of stairs, set it for "above-floor" cleaning, and work your way up the stairs. You may wish to use the optional attachment kit as an aid for this task i.e., the 8 foot hose attachment, cleaning wands, and the floor cleaning brush.

8. Empty the dust bin when the debris reaches the level marked by the triangle, reversing the assembly procedures to remove the bin. (8a)

To remove bin:

- Twist the blue handle on the back of the unit clockwise to release the bin. (8b)
- Facing the front of the vacuum, move the handle on the front of the bin slightly to the right to release the front tab. (8c)
- Fully lower the bin, then tilt it outward to remove it. (8d)

When emptying bin, be careful that dust doesn't fly around. Do not pound the bin on a hard surface to get it clean, as this could damage it. As necessary, the bin can be washed with water and liquid dishwashing detergent.

9. For easier cleaning the inner cyclone cone may be removed. (9a)

- Grasp the cone and rotate it clockwise slightly for release, then carefully lower it to remove.

- Rinse in clear water and dry thoroughly.

- To re-install, carefully slide the cone back into the vacuum cleaner. Be sure to lock it into place by rotating it counterclockwise.

## CLEANING SOILED CARPETS

Soiled carpets are difficult to clean with ordinary vacuum cleaners because of the four types of soil that are involved.

- Surface dirt and litter
- Dust on fiber and on pile backing
- Abrasive grit and sand imbedded in the carpet.
- Oily soil from the street, garage, etc.

The oily soils can cause the other three soil types to cling to the carpet fibers. This can make it difficult to clean a carpet thoroughly with ordinary vacuuming.

Liquid cleaners and hot water extraction systems can do the job, but they require expensive equipment and are, therefore, often left to the professional contractor. Such systems are also time-consuming and may require extended drying time, which makes them impractical for many applications.

Amway's solution to the problem is its EASY MAGIC™ Dry Powder Carpet Cleaner (E-9665) used with the CMS 1000 System.

The EASY MAGIC Dry Powder Cleaner is made up of thousands of microscopic "sponges" filled with a special cleaning solution. As the powder is worked into the carpet, the cleaning solution loosens the oily soil. The dirt, grit, and grime cling to the powder, which then is vacuumed away.

The CMS 1000 System does a superior job of vacuuming up this powder because of its unique multi-filtration design. It delivers top power from start to finish, with no bag to clog up and reduce its suction power. It picks up all the powder and the absorbed oil and dirt.

Dry powder cleaning is effective, and it is faster and easier than steam extraction or liquid cleaners. It is highly recommended for cleaning high traffic areas, especially when there is little time for conventional shampooing.





## THE "80/20 RULE" OF DRY POWDER CLEANING

On the average, only a small area (20%) of the carpet area in a home or commercial establishment will receive most of the traffic and therefore most (80%) of the soil. With proper cleaning you can keep this soil from spreading to the rest of the carpet. On the other hand, if you allow the heavy traffic area to become saturated with soil, the soil may spread like ink on a blotter.

Weekly dry powder cleaning of high traffic areas such as entrances, hallways, and areas around often used furniture, will help eliminate soil saturation in these areas, and this in turn will keep the rest of your carpet cleaner and easier to maintain.

## DRY POWDER CARPET CLEANING INSTRUCTIONS

1. Sprinkle the dry powder lightly over the carpet to be cleaned, working three foot by four foot areas at a time.
2. Set **CMS 1000 System** to the "above-floor" cleaning mode. This will cut off the vacuum to the floor while allowing the brush to remain in operation.
3. Briefly work the dry powder into the carpet with the unit's rotating brush. If your carpet is very heavily soiled, we recommend that you make several light applications rather than one heavy one.
4. Allow the powder to remain in the carpet for 15 to 20 minutes so that it can absorb the soil. Foot traffic may be permitted during this period, but it should be minimized for best results.
5. After the waiting period, set the **CMS 1000 System** for "floor-cleaning" and vacuum the dry powder.
6. If patches of dry powder remain after the vacuuming, it is a sign that you did not allow enough drying time. Wait a few minutes more and re-vacuum.

High traffic areas, such as entrances, hallways and the area around frequently used furniture, should be cleaned every 1-2 weeks, depending on the soil build up.

If problem stains are encountered, refer to the stain removal chart included with **CMS 1000 System**.

**NOTE:** The HEPA filter should be replaced after using **EASY MAGIC Dry Powder Cleaner** or after 3 to 5 hours of normal vacuuming operation. The filter should also be checked as a potential cause of suction drop off should this occur.



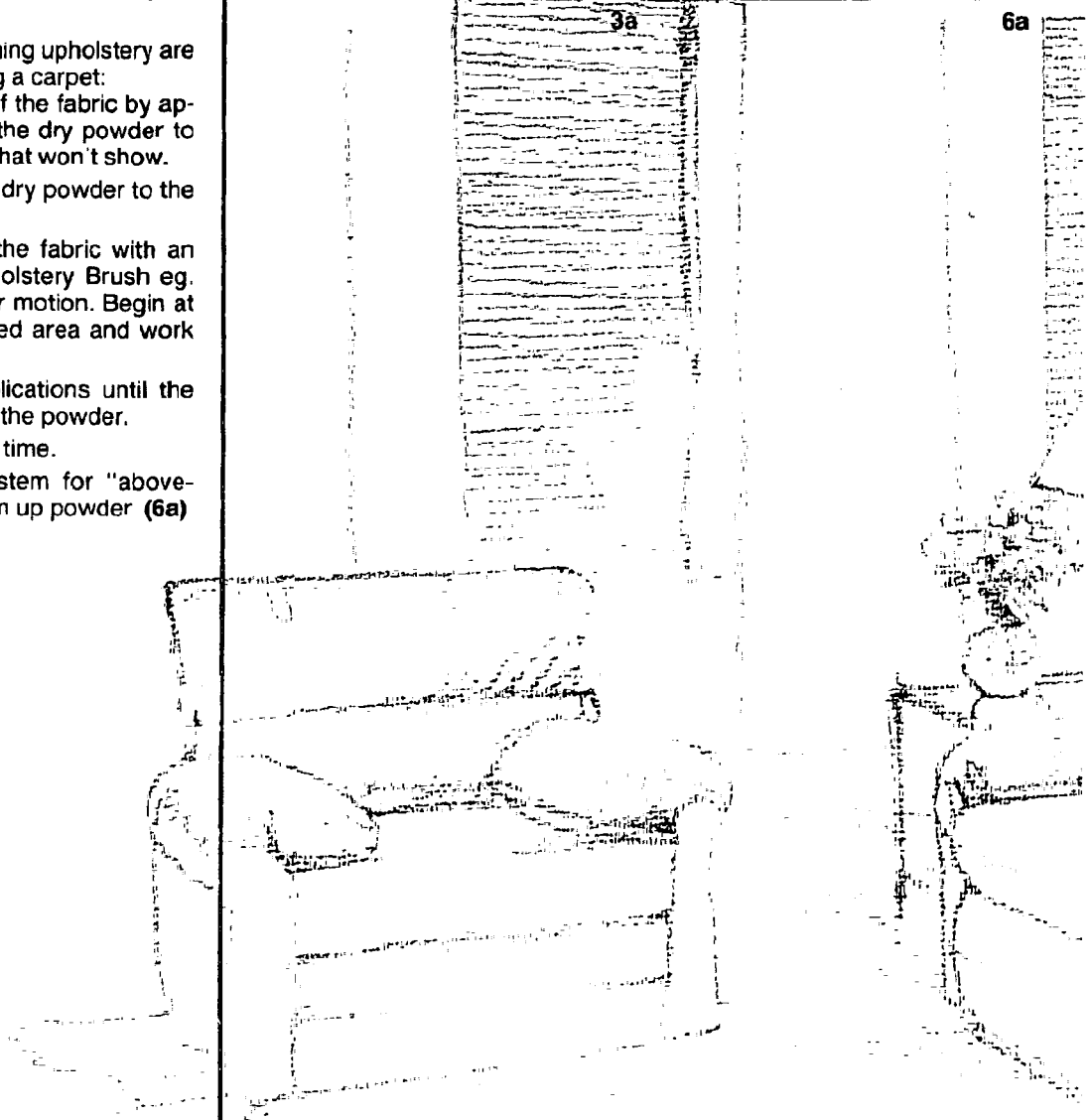
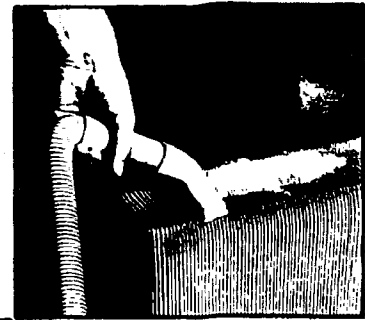
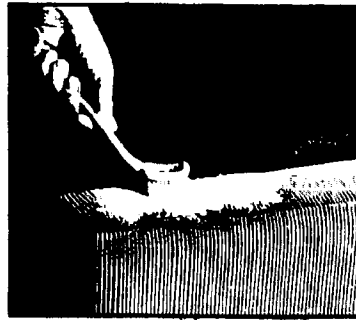
## DRY POWDER UPHOLSTERY CLEANING INSTRUCTIONS

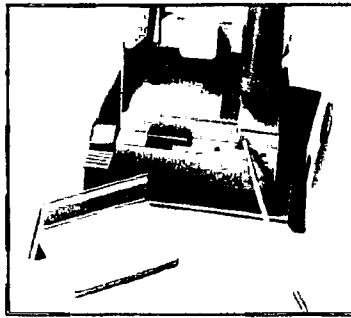
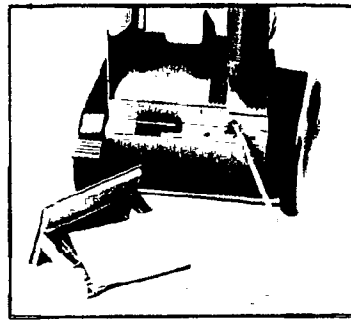
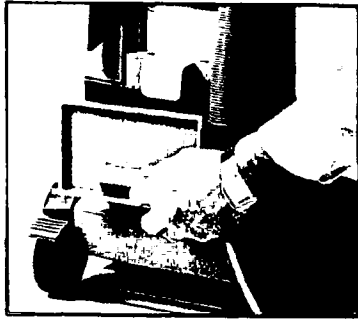
EASY MAGIC™ Dry Powder Carpet Cleaner may be used to clean household and automotive upholstery fabric. A regular cleaning of areas with most direct body contact, such as arm rests and head rests, will prevent soil build up. Other areas need only be cleaned periodically.

If problem stains are encountered, refer to the stain removal chart included with the **CMS 1000** System.

The steps to follow in cleaning upholstery are much like those in cleaning a carpet:

1. Test for colorfastness of the fabric by applying a small amount of the dry powder to an area of the upholstery that won't show.
2. Apply small amounts of dry powder to the soiled area
3. Work the powder into the fabric with an Amway® All-Purpose Upholstery Brush eg. (EAD-639), using a circular motion. Begin at the outer edge of the soiled area and work inward. **(3a)**
4. Repeat these light applications until the area is well saturated with the powder.
5. Allow 20 minutes drying time.
6. Set the **CMS 1000** System for "above-floor" cleaning and vacuum up powder **(6a)**





## CLEANING AND REPLACING FILTERS

There are two filters that protect the motor in the **CMS 1000** System. They are located in a drawer at the back of the machine.

To remove the filters, lift the handle slightly and gently pull out the drawer.

**FOAM FILTER:** This filter is designed to trap larger debris that may occasionally get through the dual cyclone system. Remove and clean the foam filter monthly, depending on machine use.

**DO NOT OPERATE THE MACHINE WITHOUT THIS FILTER INSTALLED.**

Rinse the foam filter with warm water, wring out, and allow to air dry. **DO NOT** return the filter to the machine while it is still damp.

**HEPA FILTER (AD-6371).** This is the final filter, designed to trap sub-micron particles of dust and dirt. Depending on machine use, replace this filter periodically, or when it becomes heavily loaded with fine dust or significantly discolored.

Failure to replace the HEPA filter regularly when it becomes soiled will lead to reduced performance.

To replace the filters, place the Hepa filter on the plastic grate of the drawer and place the foam filter on top of it. Slide the drawer into the machine.

**NOTE.** The Hepa filter should be replaced after using **EASY MAGIC Dry Powder Cleaner** or after 3 to 5 hours of normal vacuuming operation.

The filter should also be checked as a potential cause of performance or suction drop-off should this occur.

If you are temporarily out of HEPA filters the **CMS 1000** System may be operated with only the foam filter in place.

**BELT REPLACEMENT**

With heavy use, the belt that powers the rotating brush may wear to the point where it begins to slip and need replacement.

To replace belt (AD-6370):

1. Remove the screws holding on the belt cover. (1a)
2. Take off the belt cover. (2a)
3. Remove the rotating brush bar. (3a)
4. Slip the worn or broken belt off the brush bar and motor shaft. (4a)
5. Install the new belt by carefully slipping it over the motor shaft then the brush bar as shown. (5a)
6. Replace the brush bar in the foot housing.
7. Replace the belt cover and screws.

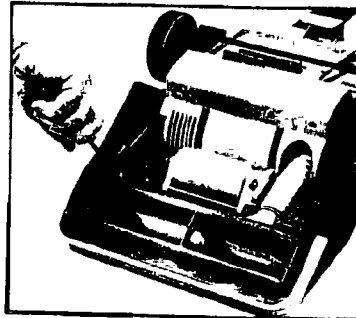
NOTE: The belt is designed to protect the motor from being damaged if the brush bar becomes damaged or locked.

FOR BEST RESULTS: Always use an Amway replacement belt. If an Amway belt is unavailable, you may use an alternate belt part number DW20-5284 available from Sears Roebuck & Co.

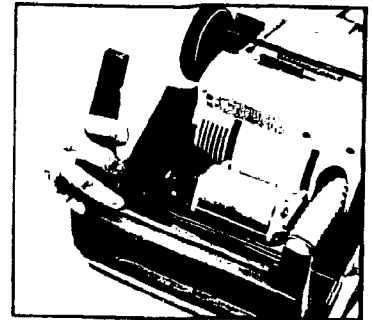
**CLEARING OBSTRUCTIONS IN THE VACUUM CLEANER**

You may, on occasion, vacuum up an object, such as a sock or a scrap of cloth, that is too big for the system to handle. If the air flow becomes restricted, a built-in device will shut down the motor to protect it from overheating.

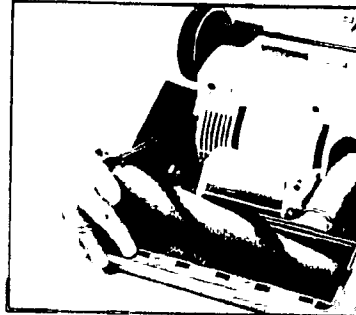
If you encounter an obstruction or a shut down, unplug the vacuum before trying to remedy the situation. Once the obstruction is clear pressing the reset switch will allow the unit to start.



1a



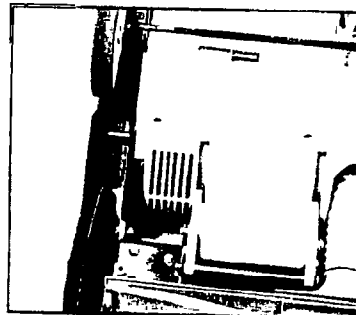
2a



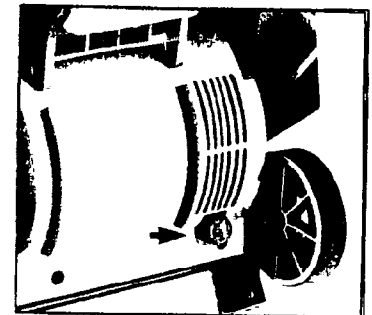
3a



4a

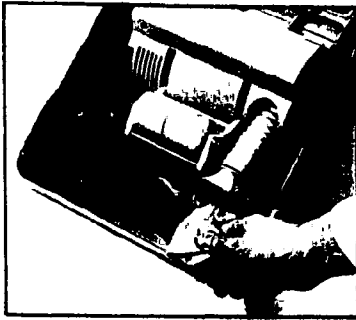


5a

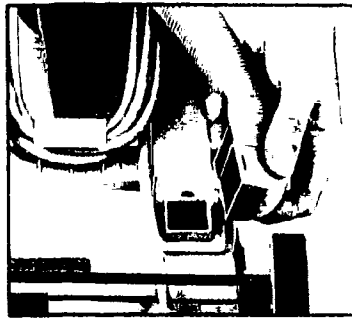


Reset Switch

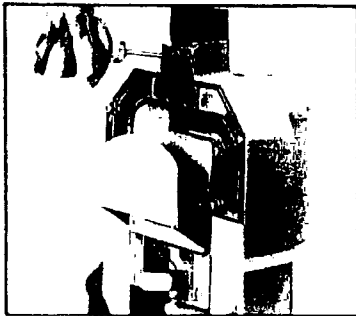




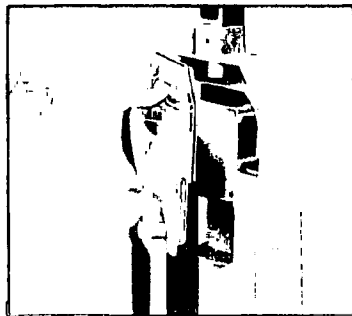
1a



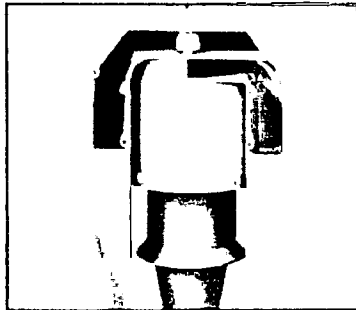
2a



3a



4a



4b



4c



4d



4e

There are four places where the **CMS 1000** System can become obstructed:

**1. In the foot (1a).** Lay the vacuum on its back and inspect the foot area. Dislodge any materials that may be obstructing the system and return the vacuum to its upright position. Note when the foot area is obstructed and the brush fails to turn freely, the belt may need replacement. When clearing an obstruction from this area be sure to check the belt also.

**2. At the mode (above floor/floor cleaning) control switch.** To gain access to this area, grasp the blue hose connector.

Holding onto the vacuum cleaner pull the connector off. Clear any obstructions. **(2a)**

Snap the connector back into position.

**3. In the upper housing (3a).** Look through the view plate to determine if any debris has lodged in the upper housing.

If the upper housing is clogged, remove the screws, detach the plate, and remove the debris. Then reattach the plate and screw in place.

**4. In the vertical air shaft.** To gain access to this shaft, remove the screws shown in the pictures **(4a, 4b, 4c, 4d, 4e, and 4f)**

When the air passages have been cleared and the machine reassembled, plug the vacuum in and turn it on.

If the motor does not start it is because an automatic device shut down the motor to protect it from overheating. Press the reset button to return the vacuum to operation.



Lift the upper module off the foot to expose the air shafts.

The obstruction is more likely to be in the up-draft tube than the downdraft tube

If the obstruction is jammed tightly in the air shaft, it may be necessary to remove it with a short piece of stiff wire, such as a coat hanger.

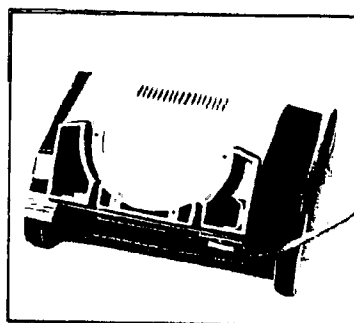
When the air shaft is clear, reattach the upper module to the foot and replace the screws.



4d



4e



4f

## TROUBLE SHOOTING GUIDE

### Problem

Unit will not run/motor will not start

### Action to Take

1. Ensure the power cord is properly plugged into the wall socket.
2. Press the reset button on the motor housing
3. Examine the power cord for broken or frayed wires.

Motor will run but the brush in the foot will not rotate

1. Check for a broken or loose belt and replace if needed.
2. Remove the brush from the foot and see if the bearings rotate easily. If not, replace the brush

The unit appears to have lost power and pickup is poor, either through the foot or auxiliary hose

1. Check the HEPA filter and replace if heavily soiled.
2. Check the belt to ensure it is not loose or broken.
3. Inspect the unit for plugs of carpet fiber or debris.

A large amount of soil and/or carpet fiber is accumulating on the foam filter.

1. Ensure that the dust bin is being routinely emptied when the soil reaches the full mark on the bin.
2. Do not operate the unit in the full horizontal position with the dust bin full.
3. Ensure that the black gasket that fits between the lower and upper blue cyclone cones is properly in place.

An excessive amount of carpet fiber accumulates quickly in the dust bin requiring frequent emptying

1. This is a common occurrence with new carpet which has many loose fibers. Over a short time, the loose fibers will be removed and "normal" soil accumulation in the dust bin will occur. Conventional vacuums will remove the same amount of carpet fiber, but it is not visible to the user.

The handle of the unit will not hold in the up-right or lower lock position

1. Examine the spring on the handle release lever to see if it is stretched or broken.

The unit repeatedly shuts off after a few minutes of use

1. Check the unit thoroughly for obstructions or blockages that are causing the automatic shut-off to activate.

For assistance on other problems that may occur, refer to the service section on page 13.

### SERVICE

If at any time your **CMS 1000** Carpet Maintenance System fails to operate as described, call this 800 number 253-7088, in Michigan (800) 632-9551. Call between the hours of 9:00 AM, to 4:00 PM (Eastern Time) on normal working days. Should the **CMS 1000** Carpet Maintenance System pose a problem, please contact your Amway distributor or receive directions through the phone number listed above.

### AMWAY SATISFACTION GUARANTEE

Anytime you buy a **CMS 1000** Carpet Maintenance System you have the right to use it for 120 days from date of purchase to determine whether it is satisfactory and that you want to keep it. If you decide it is not satisfactory, return it to the Amway distributor from whom you purchased it. The distributor will offer you the choice of replacement without charge, or full credit toward the purchase of another Amway distributed product, or a refund of the full purchase price.

This guarantee does not apply to products which have been intentionally damaged or misused or used for commercial applications. Amway Pledge of Fairness: If after you have decided to keep the product, you find it does not give the service you expected, please contact your distributor or Amway Corporation. We will extend every effort to make a fair adjustment in accordance with the terms of the Satisfaction Guarantee.

Amway Corporation, Ada, Michigan 49355

### 2-YEAR LIMITED WARRANTY

Amway Corporation warrants this **CMS 1000** Carpet Maintenance System to be free of manufacturing defects for a period of 2 years from the date of original purchase. If this product becomes defective within the warranty period, Amway will repair or replace it free of charge, including transportation both ways. This warranty does not apply to damage to this product resulting from accident, misuse, tampering, or modification, or if used for commercial cleaning.

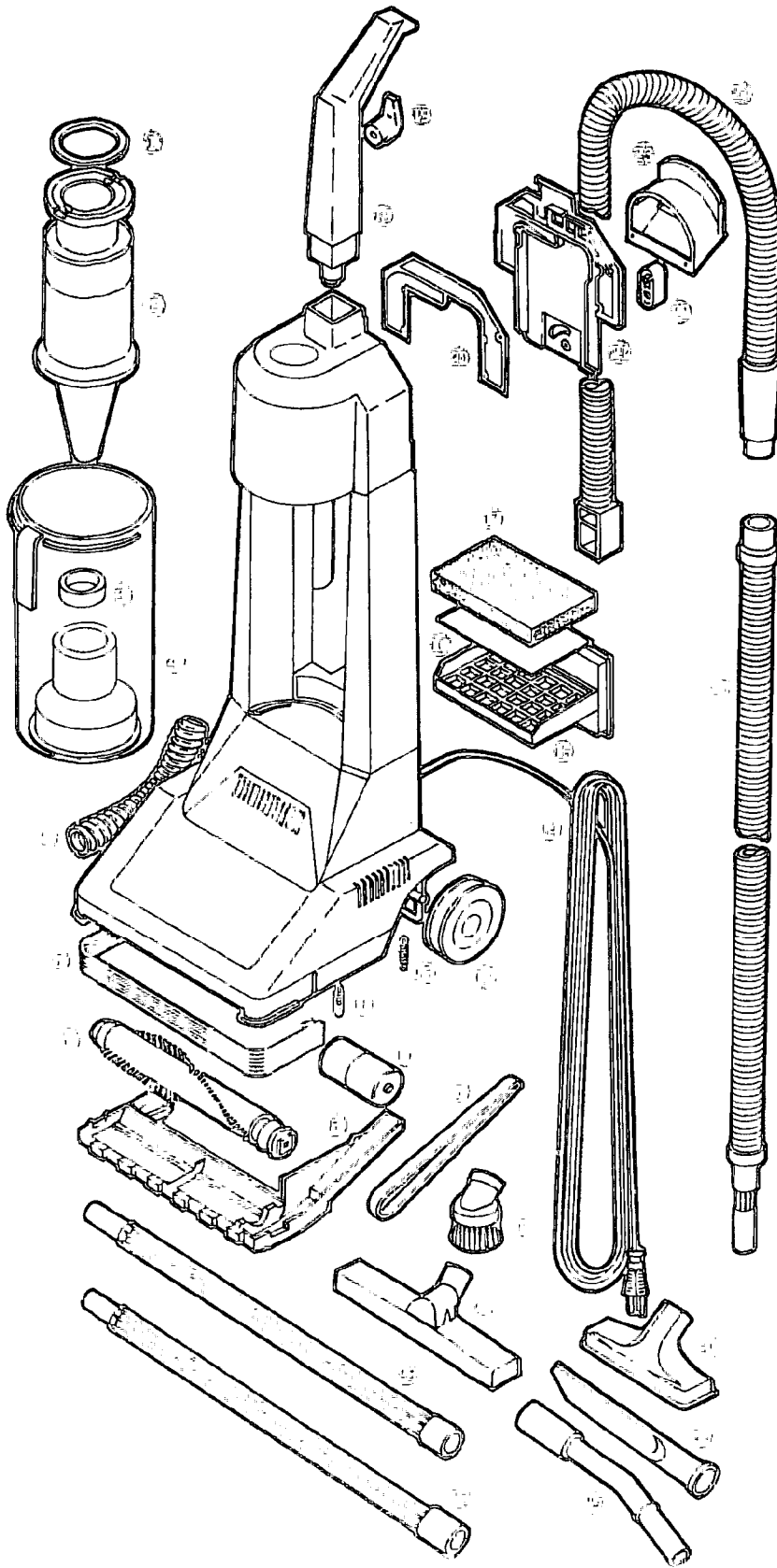
**AMWAY SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY, PROPERTY DAMAGE, OR ANY SPECIAL INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND RESULTING FROM DEFECTS IN OR MALFUNCTIONS OF THIS PRODUCT.**

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For service under this warranty, please return the defective product to your Amway distributor or to Amway Corporation, together with a note stating the date of purchase of the product and a brief description of the product defect.



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721720 L-2773-SAA **E-9485**



# REPLACEMENT PARTS FOR CMS 1000 CARPET MAINTENANCE SYSTEM

- 1 AL-6386 Cyclone Gasket—"O" Ring
- 2 AL-6391 Inner Cyclone Unit Assembly
- 3 AL-6417 Cone Seal Gasket
- 4 AL-6385 Dust Bin
- 5 AL-6392 8" Flex Hose in Cleaner Foot
- 6 AL-6396 Rubber Bumper
- 7 AL-6389 Brush Assembly
- 8 AL-6395 Foot Plate, Screws and Retainer Rings
- 9 AD-6370 Belt (pkg. of 3)
- 10 AL-6419 Roller Axle and Push Nuts
- 11 AL-6423 Roller Bracket Cam Spring
- 12 AL-6387 Plastic Wheel Push On Washer and Axle Cover
- 13 AL-6422 Foot Lever Spring
- 14 AL-6394 Cord Set
- 15 AL-6390 Filter Tray and Gasket
- 16 AD-6371 HEPA Filter (pkg. of 12)
- 17 AD-6383 Foam Pad (for filter)
- 18 AL-6384 Handle, Gaskets and Screw
- 19 AL-6397 Cord Cam Lock and Screw Assembly
- 20 AL-6401 Rear Viewing Panel Gasket
- 21 AL-6399 Rear Viewing Panel and Screws
- 22 AL-6398 Rear Dust Bin Latch Assembly
- 23 AL-6418 Hose Wrap Handle and Screws
- 24 AL-6388 Above Floor Cleaning Hose (includes wand grip and elbow)
- 25 AL-6408 Tool Kit 8' Hose
- 26 AL-6410 Tool Kit Dusting Brush
- 27 AL-6411 Tool Kit Carpet Brush
- 28 AL-6409 Tool Kit Extension Wand
- 29 AL-6413 Tool Kit Angle Adapter
- 30 AL-6420 Crevice Tool
- 31 AL-6412 Tool Kit Upholstery Brush
- AL-6414 Tool Kit Tote Bag (No Picture)
- AL-6393 Operator's Manual (No Picture)